
Preface

In the mid 1980s a number of researchers began to see how to introduce systematic approaches to the statistical modelling and analysis of hierarchically structured data. The early work of Aitkin et al. (1981) on the teaching styles' data and Aitkin's subsequent work with Longford (1986) initiated a series of developments that, by the early 1990s had resulted in a core set of established techniques, experience and software packages that could be applied routinely. These methods and further extensions of them are described in this book and are now applied widely in areas such as education, epidemiology, geography, child growth, household surveys and many others.

In addition to the first and second editions of the present text (Goldstein, 1987b, 1995), several expository volumes have now appeared (see section 1.14 in the introductory chapter). The present text aims to integrate existing methodological developments within a consistent terminology and notation, provide examples and explain a number of new developments, especially in the areas of discrete response data, multiple membership structures, factor analysis, random cross-classifications, errors of measurement and missing data. In almost all cases these developments are the subject of continuing research.

The main text seeks to avoid undue statistical complexity, with methodological derivations occurring in appendices. Examples and diagrams are used where possible to illustrate the application of the techniques and references are given to other work. The book is intended to be suitable for graduate-level courses and as a general reference.

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